

REMARKS

New claims 17 to 27 have been added. Support for those claims may be found throughout the Specification and the originally filed claims. No new matter has been added.

Claims 6 to 27 now are pending. Applicants respectfully request reconsideration of the present application in view of this amendment.

Applicants thank the Examiner for the suggestion to have claims including a description of the location of the reference surface, quarter plate and test object. Accordingly, Applicants respectfully have submitted new claims 17 to 27 which include such a description. Applicants respectfully submit that these new claims are allowable for its defining description of the location of certain features, as well as for the reasons explained below, over the cited art of the De Lang and Sharp references.

In an earlier Office Action, claims 6 to 8, 10 to 14, and 16, were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,635,552 to De Lang ("De Lang reference").

The 1974 De Lang reference concerns using an arranged light source 1 which strikes a certain dividing mirror 3 and transmitting one half of the incident beam to the reference mirror 5 and reflecting the other half to an object 4 to be tested. The De Lang reference uses an arrangement of reflection by mirrors to convert polarized light into mirrors, a linear polarizer, a $\lambda/4$ plate into circularly polarized light. The De Lang reference does not teach the entire structure of the present invention – and does not suggest in a manner to one skilled in the art to take its analyzer, use it in a specified way (and placement in the setup) with the other elements used in the claims.

Claim 6 is directed to a tunable interferometer for measuring an optical surface, and includes at least one light source; a reference surface, light from the at least one light source impinging the reference surface, the reference surface reflecting a first interference beam, wherein the reference surface is stationary when at least one light source impinges the reference surface; a test object, light from the at least one light source impinging the test object, the test object reflecting a second interference beam; at least one beam splitter, the first interference beam and the second interference beam striking the at least one beam splitter; a polarizer polarizing the first interference beam and the second interference beam so that the first interference beam and the second interference beam each have a different polarization state relative to one another; and *an analyzer positioned at an output of the interferometer, the analyzer having a variable polarization state, the analyzer tuning the interferometer as a function of the polarized first interference beam and the second interference beam, wherein depending on the polarization state of the analyzer, an additional phase is introduced into at least one of the first and second*

interference beams of different polarizations so that an interference fringe pattern is displaced by a distance.

The De Lang reference does not identically describe – as it must for anticipation – each and every element of claim 6, including the analyzer positioned at the output of the interferometer, the analyzer having a variable polarization state and tuning the interferometer as a function of the polarized first interference beam and the second interference beam, wherein an additional phase is introduced into at least one of the interference beams so that the interference fringe pattern is displaced by a distance. Accordingly, Applicants respectfully submit that claim 6, and thus its dependent claims 7, 8, 10, and 11, are allowable. Further, Applicants respectfully submit that claim 12, and its dependent claims 13, 14, and 16, contain features analogous to claim 6.

In an earlier Office Action, claims 9 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the De Lang reference in view of U.S. Patent No. 5,627,666 to Sharp et al. (“Sharp reference”).

Claim 9 depends from claim 6 and is allowable for at least the same reason(s) as claim 6 as explained above.

The Sharp reference does not cure the deficiencies of the De Lang reference. The Sharp reference appears to concern a liquid crystal phase modulator using cholesteric circular polarizers, where a phase modulator has an electro-optically rotatable smectic liquid crystal half-wave retarder in combination with a cholesteric liquid crystal circular polarizer. The Sharp reference mentions using liquid crystal cells which have optic axes which are rotatable upon application of an electric field, and to increase the tuning range more than one smectic liquid crystal cell is used in series. The Sharp reference does not appear to teach or suggest using an analyzer in the manner described, such as that required in claim 6 (and thus, claim 9) of the present invention, to tune an interferometer.

Accordingly, Applicants respectfully submit that the De Lang and Sharp references, together or alone, do not teach or suggest the invention of claim 9; and claim 9 is allowable. Withdrawal of the rejection of claim 9 under 35 U.S.C. § 103(a) over the De Lang reference further in view of the Sharp reference is respectfully requested. Applicants respectfully submit that claim 15 contains features analogous to claim 9.

It is respectfully submitted that claims 6 to 16 are allowable and that the rejections of the claims under 35 U.S.C. §§ 103(a), 102(b) should be withdrawn.

CONCLUSION

In view of all of the above, it is believed that the rejections of claims 6 to 16 have been obviated, and it is respectfully submitted that all claims 6 to 27 are presently allowable.

It is therefore respectfully requested that the rejections be withdrawn, and that the present application issue as early as possible.

Respectfully submitted,

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